

IFPS Job Sheets

GFE Job Sheets

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GFE Job Sheet 1 : Getting Started

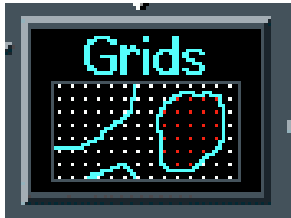
Objective

This job sheet will familiarize the user with starting the GFE. Also, it will familiarize the users with loading sample points, map backgrounds and topography. Panning and zooming the display will also be discussed.

Procedures

Starting the Graphical Forecast Editor (GFE) on the AWIPS workstation

1. Go to the **System Control Menu** by *right clicking* on one of the graphics workstations.
2. Select either “*Start IFPS on left display (:0.0)*” or “*Start IFPS on right display (:0.1)*”.
3. Once the **IFPS Master Menu** comes up, then select the **Grids** Icon.



4. The **GFE Startup** window will then appear. Log in as **SITE** under the “*User*” column and **CRP** under the “*Config*” column.
5. *GFE* will come up in around a minute.

Starting the Graphical Forecast Editor (GFE) on the Linux Box

1. Click on the **GFE** icon.
2. The **GFE Startup** window will appear. Log in as **SITE** under the “*User*” column and **CRP** under the “*Config*” column.
3. *GFE* will come up in less than a minute.

Loading Sample Points

1. Select **Maps** from the top menu bar.
2. Select **Samples** and then **Load**.
3. A **Load Sample Set** box will pop up. Select the desired Sample Set (i.e. **CCF_Sites**).
4. Click **Add**.

Adding a Map Background

1. Select **Maps** from the top menu bar.
2. Select the box (highlight it **yellow**) of the appropriate map background (i.e. **Cities**).

Adding Topography

1. Select **Maps** from the top menu bar.
2. Select the box (highlight it **yellow**) for **Topography**. The **Topography** will load as an image.

Zooming the Display

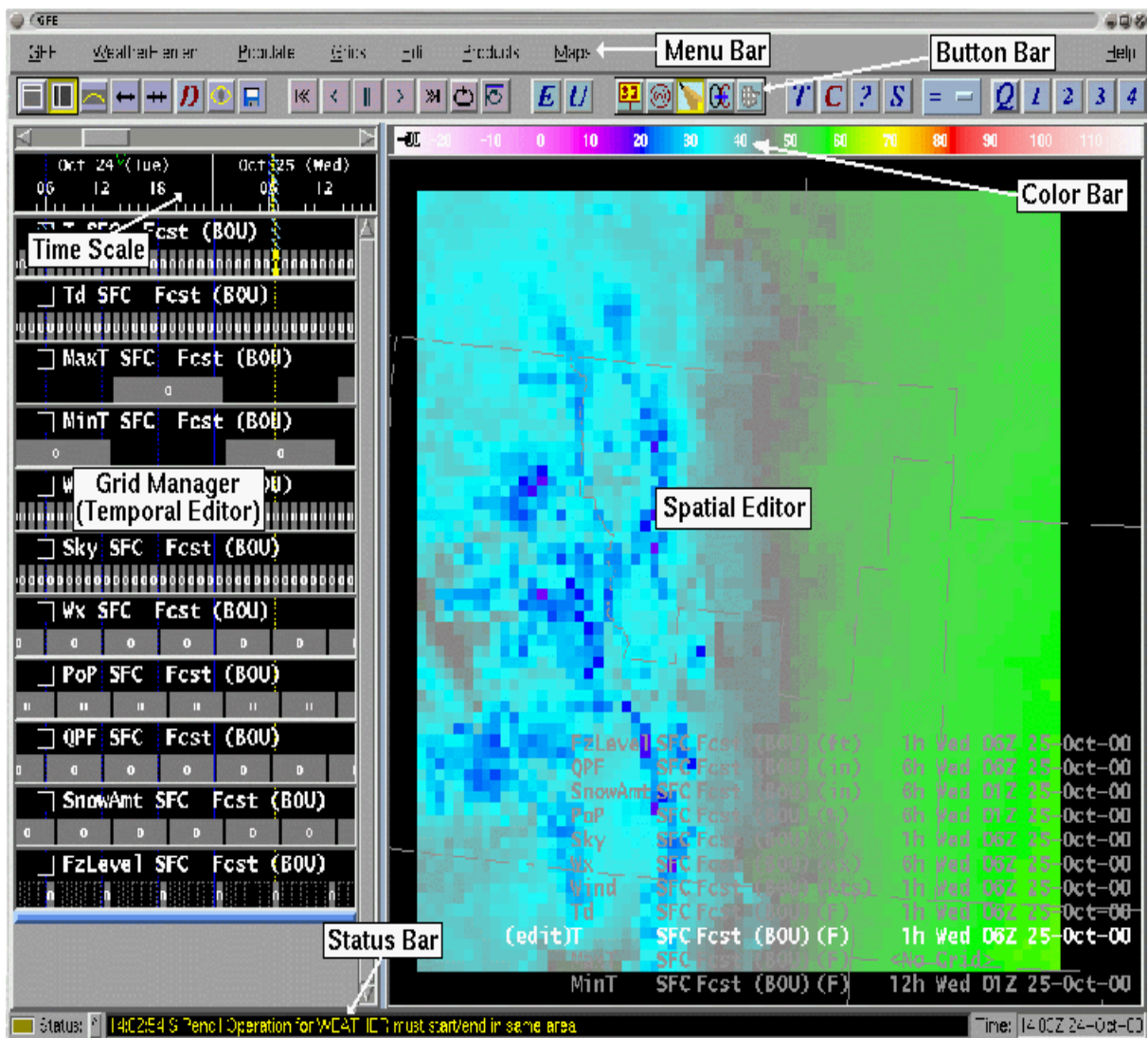
1. *Right click* anywhere within the *Spatial Editor*.
2. Select **Zoom** and a desired value to zoom in or out.

OR

1. While holding down the **Shift** key, click on the *left mouse* button to zoom out or the *middle mouse* button to zoom in.

Panning the Display

1. While holding down the **Shift** key, drag either the *left* or *middle mouse* buttons.
2. The display will now be shifted.



GFE Job Sheet 2 : Viewing IFP/D2D Grids

Objective

This job sheet will familiarize the user with viewing IFP-derived sensible weather elements as well as a limited set of AWIPS D2D data. The model data that comes from the IFP source is derived from model soundings and is calculated for the surface. Viewing the IFP/D2D data **BEFORE** populating the forecast database will enable the user to determine if any of the output will provide a good “first guess”.

Procedures

Loading IFP Derived Model Data

1. Select **WeatherElement** from the top menu bar.
2. Select **Weather Element Browser**. A pop-up window will then appear.
3. Make sure that **IFP** is highlighted under the “*Types*” menu.
4. Select **Source** from the “*Sources*” menu and highlight your model of choice. (Make sure that **Fcst** remains selected in the “*Sources*” menu so that your forecast database will load up as well. If not, then you can still load up the **Fcst** database by selecting **Fcst** from the “*Sources*” menu and the appropriate “*Fields*” and “*Planes*” menus.)
5. Select **Field** from the “*Fields*” menu and click on the field of interest. If nothing is selected, then by default the **Public Weather Element Group** is highlighted.
6. Repeat steps 4 and 5 until all the particular model fields are displayed in the “*Product Selection List*” menu.
7. Click the **Load and Dismiss** button at the bottom of the **Weather Element Browser** window.
8. **IFP**-derived model data are available to be viewed only.

Loading D2D Model Data

1. Select **WeatherElement** from the top menu bar.
2. Select **Weather Element Browser**. A pop-up window will then appear.
3. Select **D2D** under the “*Types*” menu.

4. Select **Source** from the “*Sources*” menu and highlight your model of choice.
5. Select **Field** from the “*Fields*” menu and click on the field of interest.
6. Select a specific plane, if necessary, under the “*Planes*” menu.
7. Repeat steps 4,5 and 6 until all the desired fields and planes are listed in the “*Product Selection List*” menu.
8. Click the **Load and Dismiss** button at the bottom of the **Weather Element Browser** window.
9. **D2D** model data will now be available to be viewed only.

Unloading weather elements

1. Select **Weather Element** from the top menu bar. Then select **Weather Element Browser**. A pop-up browser will appear. Deselect (un-highlight) the weather element by clicking on it within the “*Product Selection List*” menu. Then click the **Load and Dismiss** button.

OR

2. Select **Weather Element** from the top menu bar. Then select **Weather Element Groups**. Select one of the pre-defined weather element groups (i.e. **Public**). This will load the new group and unload the currently loaded fields.

OR

3. Move the mouse cursor over a specific weather element legend in the *Spatial Editor*. Press the *right mouse* button and a pop-menu will appear. Select **Unload**. Continue this procedure until all desired weather elements are unloaded.

GFE Job Sheet 3 : Populating the Grids

Objective

This job sheet will show the user how to load the forecast database with model fields and/or with the previous forecast.

Procedures

Selecting a Weather Element

1. Select a weather element by clicking on the small square box located to the left of the weather element name within the *Grid Manager*.

OR

1. If you wish to select all of the weather elements, then select **Grids** at the top menu bar.

2. Then choose **Select All Weather Elements**.

OR

1. If you again wish to select all of the weather elements, then click the *right mouse* button within the **Time Scale** of the *Grid Manager*.

2. Then choose **Select All Weather Elements**.

Selecting a Time Range

1. Press and drag the *left mouse* button inside the desired weather element pane of the *Grid Manager*. You will notice **blue** hatched shading indicating that the time range has been selected.

2. Release the *left mouse* button once you have selected the desired time range.

OR

1. Press and drag the *left mouse* button inside the **Time Scale**.

2. Release the *left mouse* button once you have selected the desired time range.

OR

1. Select **Grids** from the main menu bar.

2. Then choose the **Select Grids By Time** selection.
3. Select one of the time ranges in the drop-down window.

OR

1. *Right click* the mouse button inside the **Time Scale**.
2. Then choose **Select Grids By Time** and choose a desired time range.

Now that you have selected a time range and weather element(s), you can now populate the forecast database with model, MOS, the Slider database and/or the official forecast database.

Populate using a procedure

1. Select **Populate** from the main menu bar.
2. Select one of the pre-defined procedures (i.e., **CCF**) from the drop-down list. This will execute the procedure. Some of these procedures may take a minute or two.

Populate using the Copy Selected Grids From... Selection

Purpose: To populate a specific set of weather element(s) for a specific time range.

1. Select a desired weather element and time range. This will determine which grids will be populated with new data.
2. Select **Populate** from the main menu bar.
3. Select **Copy Selected Grids From...**
4. Select one of the sources from the pop-up window.
5. Click **OK**.

Populate using the Copy All Grids From... Selection

Purpose: To populate the forecast database regardless of any weather element and/or time range selection. This command will overwrite the entire forecast database up to the last forecast hour of the populating database (MOS, Eta model, etc.).

1. Select **Populate** from the main menu bar.
2. Select **Copy All Grids From...**
3. Select one of the sources from the pop-up window.
4. Click **OK**.

GFE Job Sheet 4 : Manipulating the Grids in the Grid Manager

Objective

This job sheet will familiarize the user with the many ways to manipulate grid blocks within the Grid Manager.

Procedures

Expand a Grid's Valid Time Period

Purpose: To make a grid block have a longer valid time.

1. In the *Grid Manager*, press and hold the *middle mouse* button over a grid block.
2. While holding the *middle mouse* button, drag the cursor to the left or right until you see the grid block stretch.
3. Release the *middle mouse* button when the desired valid time period is achieved.

Split a Grid's Valid Time Period

Purpose: To split a grid into two or more separate grids.

1. Select a time range that only covers a portion of the grid block.
2. Select **Grids** from the main menu bar.
3. Select **Split Grids**. Depending upon the valid time period of the grid, you may be able to split the grids several times. Splitting of grids will cease when they are in their smallest possible parts.

OR

1. After going through the previous Step 1, then *right click* the mouse button over this selection within the *Grid Manager*.
2. Select **Split Grid**. The grid block will be split at the *cursor location*. Depending upon the valid time period of the grid, you may be able to split the grid block several times. Splitting of the grid block will cease when they are in their smallest possible parts.

Fragment a Grid's Valid Time Period

Purpose: To fragment a grid into its smallest possible parts.

1. Select a grid block using the *left mouse* button. The grid block will become blue hatched.
2. Select **Grids** from the main menu bar.
3. Select **Fragment Grids**.

OR

1. After going through the previous Step 1, click the *right mouse* button over this selection within the *Grid Manager*.
2. Select **Fragment Grid**. The single grid block will be fragmented into its smallest possible parts. This is different than above where multiple grids may be fragmented at once.

Delete Grids

Purpose: To delete grids.

1. Select the weather element(s) and the specific time range to be deleted.
2. Select **Grids** from the main menu bar.
3. Select **Delete Grids**.

OR

1. After going through the previous Step 1, click the *right mouse* button over this selection within the *Grid Manager*.
2. Select **Delete Grid**. Notice that this will only delete **ONE** grid block at a time even though you may have selected a time range covering many grid blocks. Just keep choosing **Delete Grid** until all of the grid blocks are deleted.

Interpolate Grids

Purpose: To fill in the gaps between grid blocks.

1. Select any time range and weather element that has gaps between the grids.
2. Select **Grids** from the main menu bar.
3. Select **Interpolate**.
4. Select **By Gaps** or **Based On Edited Data**.

Interpolation by gaps will calculate new grids only for gaps. Interpolation by gaps will use all the grids in the selected time range to calculate these new grids.

Interpolation based on edited data will calculate new grids for not only gaps but also for unedited grids. Interpolation based on edited data will use only the modified grids to calculate new grids.

m = Edited by the current user (Modified grids)

o = Edited by other (Previous or official forecast)

I = Interpolated grids

i = Initialized grids (AWIPS Version)

E = Eta initialized grids

A = AVN initialized grids

M = MOS, MRF or MesoEta (MEta) initialized grids

N = NGM initialized grids

R = RUC initialized grids

Assign a Default Value to Grids

Purpose: To assign a specific grid the already defined Default Value.

1. Select a time range and weather element.
2. Select **Grids** from the main menu bar.
3. Select **Assign Default Value**.

Assign a Pickup Value to Grids

Purpose: To assign a specific grid to the current Pickup Value.

1. Select a time range and weather element.
2. Select **Grids** from the main menu bar.
3. Select **Assign Pickup Value**.

Copy and Paste Grids

Purpose: To copy a grid from time period to another.

1. Make sure that there is a weather element with at least one grid block and one gap visible.
2. Press and hold the *right mouse* button over the grid block you wish to copy.
3. Select **Copy Grid** from the pop-up menu.
4. Move the cursor over either another grid block or a gap and press and hold the *right mouse* button.
5. Select **Paste Grid**.

Creating a Grid From Scratch

Purpose: To create a brand new grid

1. Press and hold the *right mouse* button over a gap of the desired weather element.
2. Select **Create From Scratch** from the pop-up menu. The newly created grid value is the *Default Value*.

Time Shift

Purpose: To move or copy a grid forward or backward in time

1. Select a time range and weather element.
2. Select **Grids** from the main menu bar.
3. Select **Time Shift...** from the pull-down menu.
4. Select **Copy** if you desire to copy the desired grid(s). Select **Move** if you desire to move the desired grid(s).
5. Adjust the slider bar to the number of hours you wish to copy/move the selected grids either forward (positive hours) or backward (negative hours) in time.
6. Click **OK**.

GFE Job Sheet 5 : Editing Grids in the Spatial Editor - Edit Tools

Objective

This job sheet will familiarize the user on how to use the various editing tools of GFE. These tools will be used in the Spatial Editor environment.

Procedures

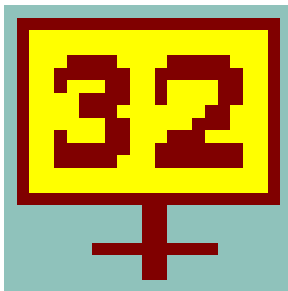
Toggle a Grid to Edit Mode

1. Make the weather element visible by clicking on the *left mouse* button on the **Legend**.
2. Click the *middle mouse* button on the desired weather element to toggle it to edit mode. You should see an **(edit)** phrase appear before the desired weather element.

OR

1. Locate the desired weather element grid in the *Grid Manager* and click the *left mouse* button on the grid block. The **(edit)** phrase will appear before that desired weather element in the *Spatial Editor*.

Sample Tool

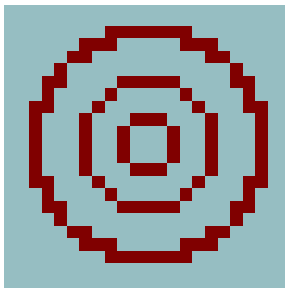


Purpose: To produce actual grid values on the Spatial Editor.

1. Make sure that a weather element is visible on the *Spatial Editor*.
2. Select the **Sample Tool** on the button bar.
3. Move the cursor into the *Spatial Editor* and then *left click* the mouse button over a desired area of interest.
4. A text or numerical value will be displayed on the *Spatial Editor*.

5. If you select additional weather elements, then sample points for those weather elements will also be displayed.
6. To delete individual sample points, click the *middle mouse* button over the “+” symbol located on the *Spatial Editor*.
7. To delete all sample points at once, then go to **Maps** on the main menu. Then select **Samples** and then **Clear**.

Contour Tool - Draw a New Contour (only for scalar fields)



Purpose: To modify grid values by drawing and adjusting contours.

1. While in **Edit Mode** for the desired weather element, select the **Contour Tool** from the button bar. To gain the best results, you may want to select **Delete All Contours** from the Spatial Editor by using the *right mouse* button. You may also want to adjust the **Contour Adjust Influence** (*right click* in the *Spatial Editor*) to make small or large changes to contours.
2. Pick a value from the **Color Bar** by clicking the *left mouse* or *middle mouse* buttons. You can also drag either of these buttons to select a value (**Pickup Value**).
3. Move the cursor over the *Spatial Editor* and press the *left mouse* button and then drag the cursor to define the new contour.
4. When you are done drawing the contour, release the *left mouse* button. The new contour will appear in the *Spatial Editor*. **(It is best to start and finish at the edge of the grid domain.)**
5. Repeat Steps 2 through 4 to define additional contours.
6. Press the *right mouse* button anywhere within the *Spatial Editor*. Select **Calculate New Grid** from the pop-up menu.
7. A new grid should appear shortly that correlates with the new contours.

Adjust a Contour

1. While in **Edit Mode** for the desired weather element, select the **Contour Tool** from the button bar.
2. Move the cursor over the contour of interest.
3. Press and hold the *middle mouse* button and drag a new position for this contour. For the best results, make sure that you release the button over the same contour on which you started with.
4. Once the *middle mouse* button is released, the grid is recalculated and the new contour position is displayed.

Delete a Contour

1. While in **Edit Mode** for the desired weather element, select the **Contour Tool** from the button bar.
2. Move the cursor over the contour of interest.
3. Click the *middle mouse* button and the contour should disappear.

Add a Contour

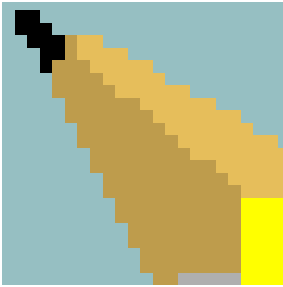
1. While in **Edit Mode** for the desired weather element, select the **Contour Tool** from the button bar.
2. Move the cursor to a location between two contours.
3. Click the *left mouse* button and a contour should appear.

Undo Last Contour Edit

Purpose: To undo the last contour edit.

1. *Right click* on the *Spatial Editor* and select **Undo Last Contour Edit**.
2. This will reverse the last contour edit that you made.

Pencil Tool



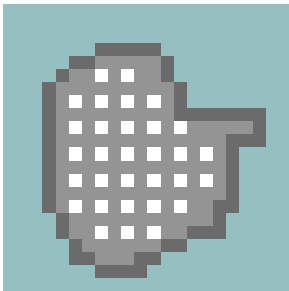
Purpose: To modify grid values by adjusting the position of contours.

1. While in **Edit Mode** for the desired weather element, select the **Pencil Tool** from the button bar.
2. Change the **Pencil Tool Influence** value by *right clicking* on the mouse button over the *Spatial Editor*. A menu will appear and then choose the desired value. The lower the value, the smaller the area changed by the **Pencil Tool**. The higher the value, the greater the area changed by the **Pencil Tool**.
3. Now press and drag the *left mouse* button over the *Spatial Editor*.
4. As you drag the mouse, a white line appears that defines the new position of the gridded contour.
5. Release the *left mouse* button until the desired change for the grid value is made.
6. Repeat Steps 2 through 4 to modify additional grid values.

Pencil Tool - Editing Weather

1. Make the **Wx** element editable in the *Spatial Editor*.
2. Select the **Pencil Tool**.
3. Find a contiguous area of weather.
4. Move the cursor inside this area and press and hold the *left mouse* button.
5. Drag the cursor to define a new boundary for this weather area. Make sure that you begin and end in the same contiguous weather area in which you started. Release the *left mouse* button until the desired change is made.

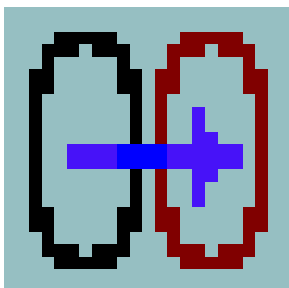
Select Points Tool



Purpose: To define an edit area.

1. Select the **Select Points Tool** on the button bar.
2. Press the *left mouse* button and drag a closed outline anywhere on the *Spatial Editor*. A white outline will be displayed as the outline is being formed.
3. Release the *left mouse* button once the closed outline is created. A white shaded area will now be displayed indicating the new edit area that has been created.
4. To delete a portion of the edit area, draw another closed outline with the *middle mouse* button which overlaps the portion of the original edit area that you want to delete.
5. To delete an edit area, then select the *right mouse* button over the edit area and then select **Deselect Contiguous Area** from the pop-up menu. You can also use the **Clear Edit Area** button labeled “C”.

Move/Copy Tool



Purpose: To adjust the spatial position of grid values.

1. While in **Edit Mode** for the desired weather element, find a feature that you would like to copy or move.

2. Pick the **Select Points Tool** from the button bar and create an edit area that identifies this feature.
3. Pick the **Move/Copy Tool** from the button bar.
4. Move the cursor over the edit area and then press and hold the *left mouse* button. This is the **Copy** function.
5. Drag this feature to some other desired location and then release the mouse button. The feature that you selected has been copied to the new location...leaving the original edit area unchanged.
6. Another way to move a feature is to drag the edit area with the *middle mouse* button. If this procedure is used, then the original edit area **DOES** change with new interpolated grid values. This is the **Move** function.

GFE Job Sheet 6 : Editing Grids in the Spatial Editor - Edit Areas

Objective

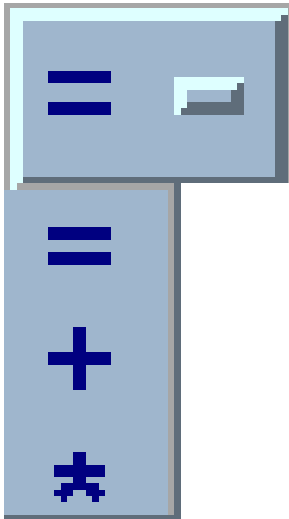
This job sheet will familiarize the user with how to make changes to grid values using edit areas.

Procedures

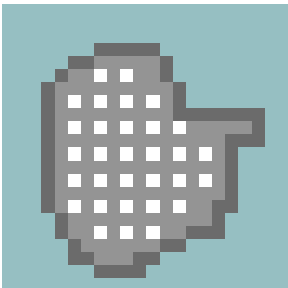
Define an Edit Area by hand

Purpose: To define an edit area.

1. Make sure that the current edit area mode is set to **Replace (=)** mode.



2. Select the **Select Points Tool**.



3. Move the cursor into the *Spatial Editor*.

4. Press the *left mouse* button and drag the cursor to outline an edit area with the mouse. A white outline will define the edit area.
5. Release the *left mouse* button. A white shaded area will occur and will define the edit area.
6. Repeat Steps 1 through 5 but change the edit area mode to **Union (+)** mode beforehand. Each edit area that is now defined will remain on the Spatial Editor.
7. Repeat Steps 1 through 5 but change the edit area mode to **Intersection (*)** mode beforehand. Only the edit areas that overlap will be displayed.

Erase an Edit Area

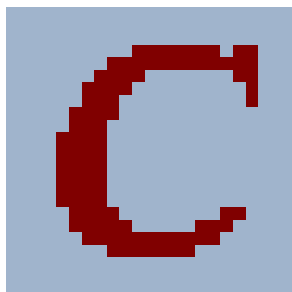
Purpose: To remove a portion of the edit area.

1. Make sure that the **Select Points Tool** is selected.
2. Move the cursor over any edit area and press the *middle mouse* button.
3. With the *middle mouse* button pressed, now drag another outline to define a new area that partially intersects with the original edit area.
4. Release the mouse button and notice that the intersected area is removed from the original edit area.

Clear an Edit Area

Purpose: To clear the current edit area.

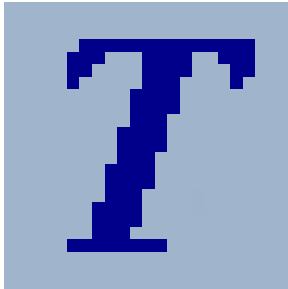
1. Make sure that there is an edit area displayed in the *Spatial Editor*.
2. Click on the **Clear Edit Area** button on the button bar.



Toggle an Edit Area

Purpose: To invert the current edit area.

1. Click on the **Toggle Edit Area** button on the button bar.



2. All the grid values not selected as an edit area will now be selected as the new edit area.

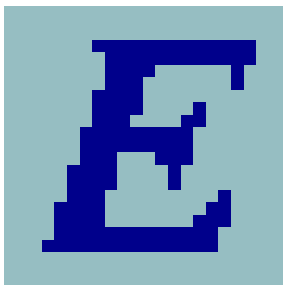
Select a Homogenous Edit Area based on a Value

Purpose: To select an edit area based upon a specific value.

1. While in **Edit Mode** for a desired weather element, move the cursor to a desired grid value on the *Spatial Editor*.
2. Click the *right mouse* button and select **Select Homogenous Area**.
3. A new edit area will now be displayed based upon grid values equalling the chosen grid value plus or minus a **fuzz value**. (For example, if the **fuzz value** is 2 and the grid value you chose is 80, then the new homogenous edit area will include all grid values between 78 and 82.)

Change the Fuzz Value

1. Select the **Edit Action Dialog** button on the button bar.



2. In the *Edit Actions* pop-up window, select **Fuzz Value...** near the bottom.
3. Change the fuzz value to a desired value to create a representative homogenous edit area.
4. Click **OK**.
5. Go through the procedures on how to create a homogenous edit area and notice the change in the edit area created.

Remove a Contiguous Edit Area

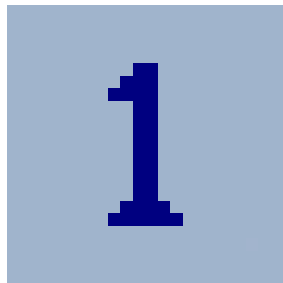
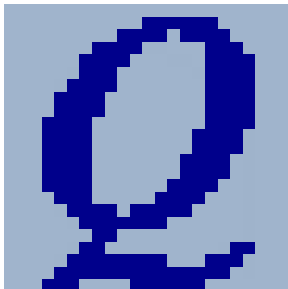
Purpose: To remove a contiguous edit area.

1. If you created a homogenous edit area, then move your cursor to any point within this edit area.
2. Press the *right mouse* button and select **Deselect Contiguous Area** from the pop-up menu.
3. The homogenous edit area is now deleted. Of course, you can also click on the **Clear Edit Area** button labeled “C” to delete an edit area.

Saving Edit Areas as QuickSets

Purpose: To temporarily save an edit area.

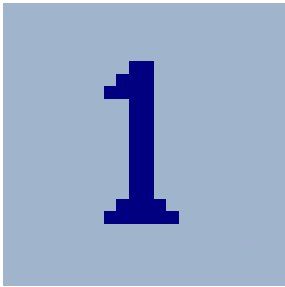
1. Define an edit area by hand.
2. Click the **Quickset** button on the button bar and then one of the numbered buttons to the right of the **Quickset** button.



3. The edit area is now saved under that particular slot (In the example above, Quickset 1).

Loading a QuickSet Edit Area

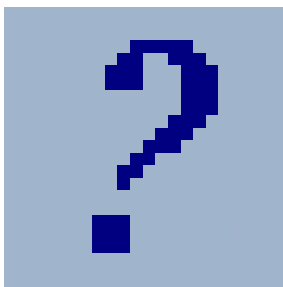
1. Remember the specific edit area that was saved to a particular **Quickset**. Then find the numbered button on the button bar.
2. Select the numbered button and that particular **Quickset** edit area will now be displayed.



Saving Named Edit Areas

Purpose: To save the current edit area as a permanently named set.

1. Define an edit area by hand.
2. Select the **Edit Area and Query Dialog** button on the button bar.

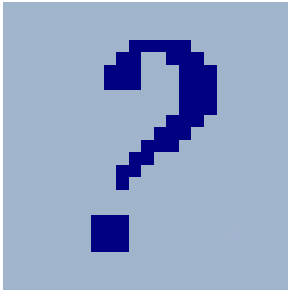


3. From the *Edit Area and Query* window, select the **Save/Delete** selection and then select the **Save Edit Area...** selection.
4. From the *Save Active Edit Area* window, then type in a name for your edit area under the “*Identifier*” label. You may also want to select an *Edit Area Group* as well or otherwise your edit area will be placed in the “**Misc**” *Edit Area Group*.
5. Then select the **Save Active Area** button.

Saving an Edit Area to an Edit Area Group

Purpose: To assign an edit area to a specific edit area group for easier organization.

1. If you did not assign an edit area group at the time you saved your edit area, then click on the **Edit Area and Query Dialog** button on the button bar.



2. From the *Edit Area and Query* window, select the **Save/Delete** selection and then select the **Save Edit Area Group...** selection.

3. From the *Save Edit Area Group* window, select one of the edit area group names on the left-hand side. You can also create a new edit area group by simply typing a new name in the “*Identifier*” space.

4. Then select one or more edit areas (on the right-hand side) that you want included in the edit area group you previously selected.

6. Click the **Save Group** button at the bottom.

7. You will now have an edit area group with certain edit areas associated with it.

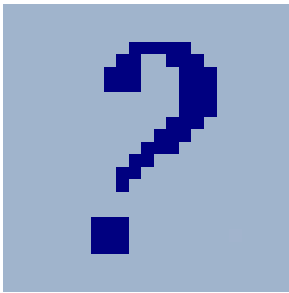
8. To remove certain edit areas from an edit area group, then bring up the *Save Edit Area Group* window. Unhighlight the desired edit areas from an edit area group. When you are finished, click **Save Group**.

9. To delete an edit area group, then select the **Delete Edit Area Group** selection. Then highlight a specific edit area group and then click **Delete Group**.

Loading Named Edit Areas

Purpose: To display a named edit area.

1. Select the **Edit Area and Query Dialog** button on the button bar.



2. Once the dialog box comes up, then select a named edit area from the *Edit Areas* column.
3. Select **Submit** near the bottom of the dialog box.
4. The named edit area that you selected should now be displayed in the *Spatial Editor*.

Deleting Named Edit Areas

Purpose: To delete a named edit area.

1. Select the **Edit Area and Query Dialog** button.
2. Then select **Save/Delete** from the top.
3. Select **Delete Edit Area....**
4. Select the desired edit area to be deleted. The “**Misc**” and “**Discrepancy**” edit area groups will have their edit areas listed by default.
5. Select **Delete Selected Area**.

Edit Area Queries

Purpose: To define an edit area based upon certain data values.

Example of a Simple Query

1. Display a temperature (**T**) grid on the *Spatial Editor*.
2. Use the **Samples Tool** to determine several values over the grid domain.
3. Select the **Edit Area and Query Dialog** button on the button bar.
4. When the *Edit Area and Query* window opens, then select **T** from the column labeled *Weather Elements*.
5. Next, select the greater than sign **>**.
6. Now select a temperature value that is contained in the grid domain using the number keys.
7. Select the **Submit** button which is located near the bottom of the window.
8. When you submit your query, *GFE* will draw an edit area based on the mathematical or boolean expression contained in the query.

Example of a Complex Query

1. Clear the current edit area by clicking on the **Clear** button labeled **C**.
2. With the temperature grid still loaded, select the **Edit Area and Query Dialog** button again, if it is not already visible.
3. Select **T**, then **>**, then type in a representative value (e.g., 70) using the number keys.
4. Select ***** (intersect) which is located to the left of the *Weather Elements* section.
5. Now select **T** again and then the less than sign **<**.
6. Using the number keys, type in a values higher than the one used in Step 2 (e.g., 90). The query will look like this: **T>70*T<90**
7. Select the **Submit** button. The new edit area will be computed by *GFE*.

Example of a Multiple Parameter Query

1. Load the dewpoint (**Td**) grid onto the *Spatial Editor* with the temperature (**T**) grid.
2. Examine the values of each parameter and determine some representative values.
3. Select the **Edit Area and Query Dialog** button.
4. Use the selectors or you can type in a query directly into the *Query* command line. Use representative values. You may try to create an expression like: **T>80*Td>75**
5. Once you are satisfied with your query, then select the **Submit** button.

GFE Job Sheet 7 : Editing Grids in the Spatial Editor - Smart Tools

Objective

This job sheet will familiarize the user with the concept of smart tools and their use in the editing process. The job sheet will also cover ways to detect inconsistencies in the gridded data.

Procedures

Edit Actions based upon Edit Areas

Purpose: To change the grid values within an edit area using the Edit Action Dialog window.

1. While in **Edit Mode** for the desired weather element, create an edit area.
2. Select the **Edit Action Dialog** button labeled **E** on the button bar.
3. The **Edit Actions** window will then open. Now select one of the **Smart Tools** listed. Here is a brief description of the 4 main **Smart Tools**:

Assign_Value tool will assign the current **Pickup Value** across an edit area.

AdjustValue_Up tool will add the **Delta Value** to the grid values in an edit area.

AdjustValue_Down tool will subtract the **Delta Value** to the grid values in an edit area.

Smooth tool will smooth out strong gradients.

4. Notice that the edit area will change value based upon the **Smart Tool** selected.
5. If you prefer to make changes to the desired weather element over a specified time range, then you must select a time range **BEFORE** making any **Edit Actions**.

Change the Pickup Value

1. Select **Pickup Value...** from the **Edit Actions** window.
2. Select a desired value within the **Pickup Value** window using either the vertical color graph or the command line (You must hit the **Enter** key for it to be accepted).
3. This will be the value that is assigned when the **Assign_Value Smart Tool** is used.

OR

1. Select a value on the **Color Bar** at the top of the *Spatial Editor* by using the *left* or *middle mouse* buttons. You can single click or drag the mouse to change the **Pickup Value**. (Remember that the **Color Bar** for the **Wx** grid only displays weather that is displayed. This is a limiting factor if you choose to select the **Pickup Value** of **Wx** with either the *left* or *middle mouse* buttons.)

OR

1. *Right click* on the **Color Bar**.
2. Select the **Set Pickup Value...** option.
3. Within the **Pickup Value** window, you can edit the **Pickup Value**.

OR

1. If the **Wx** element is selected, then *right click* on the **Color Bar**.
2. Then select the **Set Weather To** option. Select the desired **Wx** element from the pull-down list or from the **Other...** selection.
3. If you select **Other...**, then other weather elements not displayed can be selected as your **Pickup Value**. You can select the desired weather element, probability of pcpn, weather intensity, visibility in miles and any other parameter that is desired. Click **Set** when finished. To add a mix of weather elements occurring together, then click **Add** on the **Set Weather** pop-up window.

Change the Delta Value

1. Select **Delta Value...** from the **Edit Actions** window.
2. Change the **Delta Value** to your desired value.
3. This will be the value that affects how the **AdjustValue_Up** and **AdjustValue_Down Smart Tools** operate.

OR

1. *Right click* on the **Color Bar**.
2. Select the **Set Delta Value...** option.
3. Within the **Delta Value** window, you can edit the **Delta Value**.

Editing Scalar Fields

1. While in **Edit Mode** for a scalar field (e.g., **T**), define an edit area of interest.
2. Change the **Pickup Value** and/or **Delta Value** to the desired values.
- 3a. To assign the **Pickup Value** to the scalar field, then select the **Assign Value** button within the **Pickup Value** window. This is also the same as using the **Assign_Value Smart Tool**.
- 3b. To assign the **Delta Value** to the scalar field, then select either the **Adjust Down** or **Adjust Up** buttons within the **Delta Value** window. This is the same as using the **AdjustValue_Up** or **AdjustValue_Down Smart Tools**.

Editing Winds

1. While in **Edit Mode** for winds, define an edit area of interest.
2. Open up the **Pickup Value** window by a method described above.
- 3a. Select wind speed and direction pressing and dragging the *left mouse* button on the wind vector to the desired level. You will see a readout of both the wind speed and direction.
- 3b. Select wind speed and direction by typing in the speed and direction in the *Enter Magnitude* and *Enter Direction* command lines (Hit the **Enter** key for the value to be accepted!)
4. Once the desired wind speed and direction has been selected as the current **Pickup Value**, then select the **Assign Value** button . The wind field in the edit area will now be changed to the current **Pickup Value**.
5. You can also adjust the magnitude of the winds by modifying the **Delta Value**. Follow the prior procedures on how to use the **Delta Value**.

Editing Weather

1. While in **Edit Mode** for the **Wx** grid, create an edit area of interest.
2. Open up the **Pickup Value** window by a method described above.
3. Select the desired **Wx** element from the vertical bar or by the **Other...** selection.
4. If you would like to combine several weather elements, then use the **Add** feature. If you want

to combine your **Pickup Value** for **Wx** with the **Wx** element that is displayed on the *Spatial Editor*, then you must highlight **yellow** the **Combine** button within the **Pickup Value** window or the “*Weather: Combine*” button in the **Editing Preferences** section of the **GFE** main menu.

5. Select the **Assign Value** button when you are finished. The **Wx** element in the edit area has now been changed.

Executing Smart Tools

Purpose: Smart Tools offer an efficient and fast way of editing grids.

To execute any **Smart Tool**, you must perform the following three operations:

1. Select a desired time range and the grids you wish to modify as outlined in earlier job sheets.
2. Create an edit area over the interested area.
3. Open the **Edit Action Dialog** box and execute the desired **Smart Tool**.

OR

1. *Right click* on the *Spatial Editor* and select the desired **Smart Tool** while in **Edit Mode**.

Example of the MaxT_SmartTool

1. Set the desired time range and make sure the weather element grid (**MaxT**) is in **Edit Mode**.
2. Select the **Edit Action Dialog** box labeled **E** on the button bar. You can also *right click* on the *Spatial Editor*.
3. Select **MaxT_SmartTool** from the list of **Smart Tools**. A brief calculation will occur.
4. The **MaxT** grids have now been changed to reflect the maximum values in the **T** grids.
5. Notice that by not creating a specific edit area, the entire grid domain is affected. In effect, the entire grid domain becomes the edit area. This is important to remember.

Executing the T Consistency Procedure

Purpose: To determine if the gridded data is consistent with one another.

1. Edit a **T** grid and a **Td** grid such that the **Td** exceeds the **T** in some area on the grid. Make sure that the appropriate time range is selected.
2. Set the **Discrepancy Value** from the **Consistency** menu for **Td** to zero.
3. Now select the **T_Consistency** procedure from the **Consistency** menu.
4. From the pop-up window, highlight **yellow** the **Calculate Discrepancy Area** selection and unhighlight the **Edit Values** selection. Then click **OK**.
5. You will then see the **Status Bar** say something like the following:
"Saved Discrepancy Edit Area: D1_Td_SmartTool". This means that an edit area was created depicting the discrepancy that exists between **T** and **Td**.
6. Go to the **Edit Area and Query Dialog** button.
7. Then highlight the **Discrepancy** edit area group on the far right. Then select the specific saved edit area as described in the **Status Bar**. The edit area is in the **Edit Areas** section. The one closest to the bottom will be the most current.
8. Then click **Submit**.
9. You will now see an edit area showing an inconsistency where **Td** exceeds **T** on the *Spatial Editor*.
10. To actually change these inconsistent values, you must re-run the **T_Consistency** procedure once again. However, this time you must **ONLY** highlight the **Edit Values** selection. Then click **OK**.
11. Now this time the **Td** grids will be changed to match the **T** grids.

To verify this, you could re-run this consistency procedure again with the **Calculate Discrepancy Area** only highlighted. You would get an empty edit area then. Also, you will see on the Status Bar: *"No Discrepancies -- no Edit Area Saved"*.

GFE Job Sheet 8 : Editing Grids in the Temporal Editor

Objective

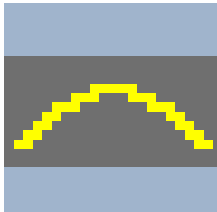
This job sheet will familiarize the user with the Temporal Editor.

Procedures

Editing Scalar Data Temporally

Purpose: To modify scalar grid values using the Temporal Editor.

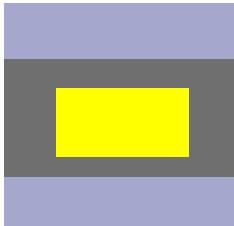
1. Select the **Toggle Grid Manager/Temporal Editor** button on the button bar.



2. The *Temporal Editor* will now be displayed along with the *Spatial Editor*.
3. Make sure that the **Temporal Editor Mode** is **Relative**. This is set by going to the *GFE* pull-down menu...then selecting **Editing Preferences**...then making sure that the “*Temporal Editor Mode: Relative*” is highlighted yellow. This means that the *Temporal Editor* is in **Relative Mode**.
4. Select a desired grid element (e.g., **MaxT**) on the *Spatial Editor*. Display it as a graphic.
5. Create a small edit area of interest. This is actually very important because you will not see any data in the *Temporal Editor* without an edit area displayed on the *Spatial Editor*.
6. You can adjust the *Temporal Editor* display various ways. You can vertically stretch the size of the *Temporal Editor* pane by bringing the cursor to the edge of the pane and then drag it to the desired size. You can also use the *right mouse button* to the left of the scale and select either **Full View** or **Fit to Data**. You can also click the *middle mouse button* to the left of the scale to zoom in or click the *left mouse button* to zoom out. To pan the display, just press the *left mouse button* and drag up or down to the left of the scale.
7. Find the data point in the time series that represents the grid displayed on the *Spatial Editor*. This point is identified by the dotted yellow line.

8. You can edit the temporal data by clicking with the *left mouse button* on a value either above or below the one you are editing. For example, click about 10 degrees above the current **MaxT** temporal data. You can also press the *left mouse button* over the temporal data and drag it vertically to the desired location. You can change a series of grid values by dragging the mouse horizontally and watching the temporal data change. (Notice that the data in the edit area of the *Spatial Editor* changes too.)

9. To toggle back to the Grid Manager, just click on the **Toggle Grid Manager/Temporal Editor** button again.



Editing Vector Data Temporally

Purpose: To modify winds using the Temporal Editor.

1. Go to the *GFE* pull-down menu.
2. Select **Editing Preferences**. Make sure that the "*Temporal Editor Mode: Relative*" is **NOT** selected. This means that the *Temporal Editor* is in **Absolute Mode**.
3. Then select **Vector Edit Mode**. Make sure that **Both** is selected. This will allow both magnitude and direction to be edited.
4. Select the wind element (**Wind**) on the *Spatial Editor* and create an edit area of interest. Display it as a graphic.
5. Adjust the size of the window and the display of the data as outlined previously.
6. Find the data point in the time series that represents the grid displayed on the *Spatial Editor*. This point is identified by the dotted yellow line.
7. To change the magnitude, you simply click on the *left mouse button* above or below the desired point. As an example, click about 10 knots above the data point. You can also press and drag the *left mouse button* vertically or horizontally to change the magnitude of the wind element.
8. To change the direction, you must press and hold down the **Shift** key. Now move the cursor

over a data point and press and hold the *left mouse button*. Adjust the direction by moving the mouse button vertically. To change the magnitude for a series of data points, then move the cursor horizontally.

Editing Weather Data Temporally

Purpose: To modify the weather grids using the Temporal Editor.

1. Make sure that the **Temporal Edit Mode** is *NOT* selected. This means that the *Temporal Editor* is in **Absolute Mode**.
2. Select the **Wx** element on the *Spatial Editor* and then create an edit area of interest.
3. Adjust the size of the pane and the display of the temporal weather data.
4. Select a **Pickup Value** for to your desired weather element (**Wx**) using any option you prefer.
5. Find the data point in the time series that represents the grid displayed on the *Spatial Editor*. This point is identified by the dotted yellow line.
6. Click on the *left mouse button* on the data point in the **Wx** pane of the *Temporal Editor*. You should see the *Temporal Editor* paint the same color and pattern of the weather element **Pickup Value**. The *Spatial Editor* will now show the edit area with the new value.

Keep in mind that **Relative Mode** will preserve pre-existing gradients while **Absolute Mode** will not. **Absolute Mode** will make changes to the entire grid with the same value *without* any concern to any pre-existing gradients.

GFE Job Sheet 9 : Saving and Publishing Grids

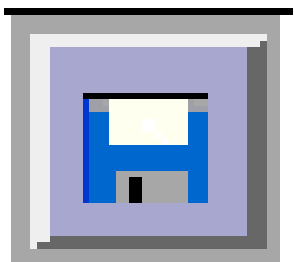
Objective

This job sheet will show the user how to save and publish gridded data to the official database.

Procedures

Saving the Grids

1. Periodically, it is a good idea to save your work on *GFE*. Once you are completely done with your edits, then save your forecast.
2. Select **Edit** from the **Menu Bar** and then select **Save Forecast...** or just simply click on the **Save Forecast** button on the button bar.



3. A dialog box with a list of *Weather Elements* will appear. Make sure that **ALL** of them are selected. If you only edited a few weather elements, then only a few elements may be listed.
4. Click **Save Weather Elements**. The forecast database is now saved.

Publishing the Grids

1. After you are finished saving the grids, you will want to publish them to the official database.
2. Select **Products** from the **Menu Bar**.
3. Click on **Publish to Official...**
4. In the pop-up window, make sure that **All Grids** are selected under the column labeled *Time Period*. Also, make sure that **Fcst** is highlighted as the source and that the edited weather elements are highlighted.
5. Click **Publish**. The forecast database has been changed to the official database.

GFE Job Sheet 10 : Troubleshooting

Objective

This job sheet will familiarize the user with the necessary procedures to follow if a problem occurs while using GFE.

Procedures

Break Locks

Purpose: To unlock the data so that the data can be saved and published.

1. If after trying to publish your grids, you see a **red** banner message stating “*PUBLISH problem: Unable to publish grids. Data locked in commitTimeRange - commit failed...*”
2. This means that the some or all of the data has been locked. The data will appear **red** in the *Grid Manager*. This could be due to someone else working on this data or that the last *GFE* session ended abnormally without saving the data that was edited.
3. In either case, you will need to go to the *GFE* main menu and select **Break Lock...**
4. A pop-up window will appear. Highlight each weather element that is locked.
5. Then select **BreakLock(s)**.
6. The data will now be unlocked. You can now publish the data.

Empty Edit Area Warning

1. If you see this warning, then your effective edit area is the entire grid domain.
2. If this is what you intend, then simply click **Yes**.
3. If not, then click **No** and define an edit area of interest.

Edit Action Time Range Warning

1. If you see this warning, then multiple grids will be modified.
2. If this is what you intend, then simply click **Yes**. If not, then click **No** and select the time range and the desired weather element(s) that you wish to edit.

ICS Job Sheet 1 : Editing Zone Combinations

Objective

This job sheet will familiarize the user with how to use the Interactive Zone Combination Selector (ICS). Specifically, it will be shown how to select and edit zone combinations.

Procedures

Launching ICS

Purpose: To start the ICS program.

1. Place the cursor over the **Zones Icon** in the **IFPS Master Menu** and select. Make sure that there is a **green** traffic light going from **Grids** to **Zones**.

OR

1. If you prefer to start *ICS* from *IGR*, then go to the **Edit** menu in *IGR*.

2. Select **Combo Definitions...** The *Change Combinations* window will then appear.

3. Click **OK** in this window.

4. The *ICS* program is now launched.

5. This is not the preferred way to edit zone combinations because the data is not re-averaged to account for the *GFE* gridded data.

Isolating a Zone from Scratch

Purpose: To create a single zone combo.

1. Place the cursor over the desired zone and press the *left mouse* button **twice**.

2. Notice the zone briefly turns **blue** and is then enclosed with a white border which indicates a zone combination.

Grouping Two Zones or Zone Combinations Together

Purpose: To group zones with another set of zones.

1. Place the cursor over the first zone or zone combination and press the *left mouse* button. The zones should be highlighted in blue.
2. Place the cursor over the second zone or zone combination and press the *left mouse* button.
3. The first zone or zone combination is now merged with the second zone or zone combination.

Grouping Zones from Scratch

Purpose: To group zones in a contiguous manner.

1. Press and hold the *left mouse* button and sweep over the counties that you would like to combine. Notice that each county is highlighted in blue as you move the cursor over it.
2. Release and press the *left mouse* button **twice** within the new grouping. The blue highlighting disappears and a white border is drawn around the new zone combination.

Creating Noncontiguous Zone Combinations

Purpose: To create zone combinations that do not share a common geographic border.

1. Place the cursor over the first zone (or set of zones) in your zone combination and press the *left mouse* button. Notice the blue highlighting.
2. Now hold down the **Ctrl** button and then move the cursor to the second zone (or set of zones) to be combined with the first zone (or set of zones). Press the *left mouse* button to highlight the second zone (or set of zones) in blue. You can release the **Ctrl** button when finished.
3. Now move the cursor over any highlighted zone and press the *left mouse* button **twice**. A yellow border will appear around the noncontiguous zone combination. A number (1,2,...) will also appear to the left of the UGC label of each noncontiguous zone combo to indicate which zones are grouped together.

Current Cycle/Previous Cycle

Purpose: To load the current or previous zone combinations.

1. To load the last saved set of zone combinations for the **CURRENT** forecast, then go to **File**, then select **Initialization** and then **Current Cycle...**
2. To load the zone combinations that were used by the **PREVIOUS** forecast, then go to **File**, then select **Initialization** and the **Previous Cycle...**

Save/Open Zone Combinations

Purpose: To save a desired zone combination for future forecasts.

1. Make sure that you have the desired zone combination that you like before proceeding.
2. Go to the **File** menu and select **Initialization**.
3. Select **Save As**. A *Save Combo Preferences As* window will then appear.
4. Type in a name for this zone combination to the right of the **LAST** “/”.
5. When you are finished typing, then select **OK**.
6. Your zone combination is now saved.
7. To load a previously saved zone combination, then simply go to the **File** menu, then select **Initialization** and then **Open**. In the pop-up window, place the cursor over the desired filename. Then select **OK**. (Note: Please keep in mind that the above will **ONLY** save a zone combination and will **NOT** save your data.)

Saving your Data

Purpose: To save any edits you make in ICS.

1. After you make all the necessary edits in *ICS*, you will want to save the zone edits you have made to the current forecast.
2. Go to the **File** menu.
3. Select the **Save** option. This will save all of your work. Now you can exit using the **Exit** option. *IGR* will then automatically start.

IGR Job Sheet 1 : Getting Started

Objective

This job sheet will familiarize the user with how to start the Interactive Guidance Revisor (IGR).

Procedures

Launching IGR for the Zones

Purpose: To start the IGR program for zone forecast data.

1. The *IGR* program will automatically load up after you exit the *ICS* program.

OR

2. If the traffic light from **Grids** to **Zones** on the **IFPS Master Menu** is **yellow**, then select **Zones**.

3. The *IGR* program will begin.

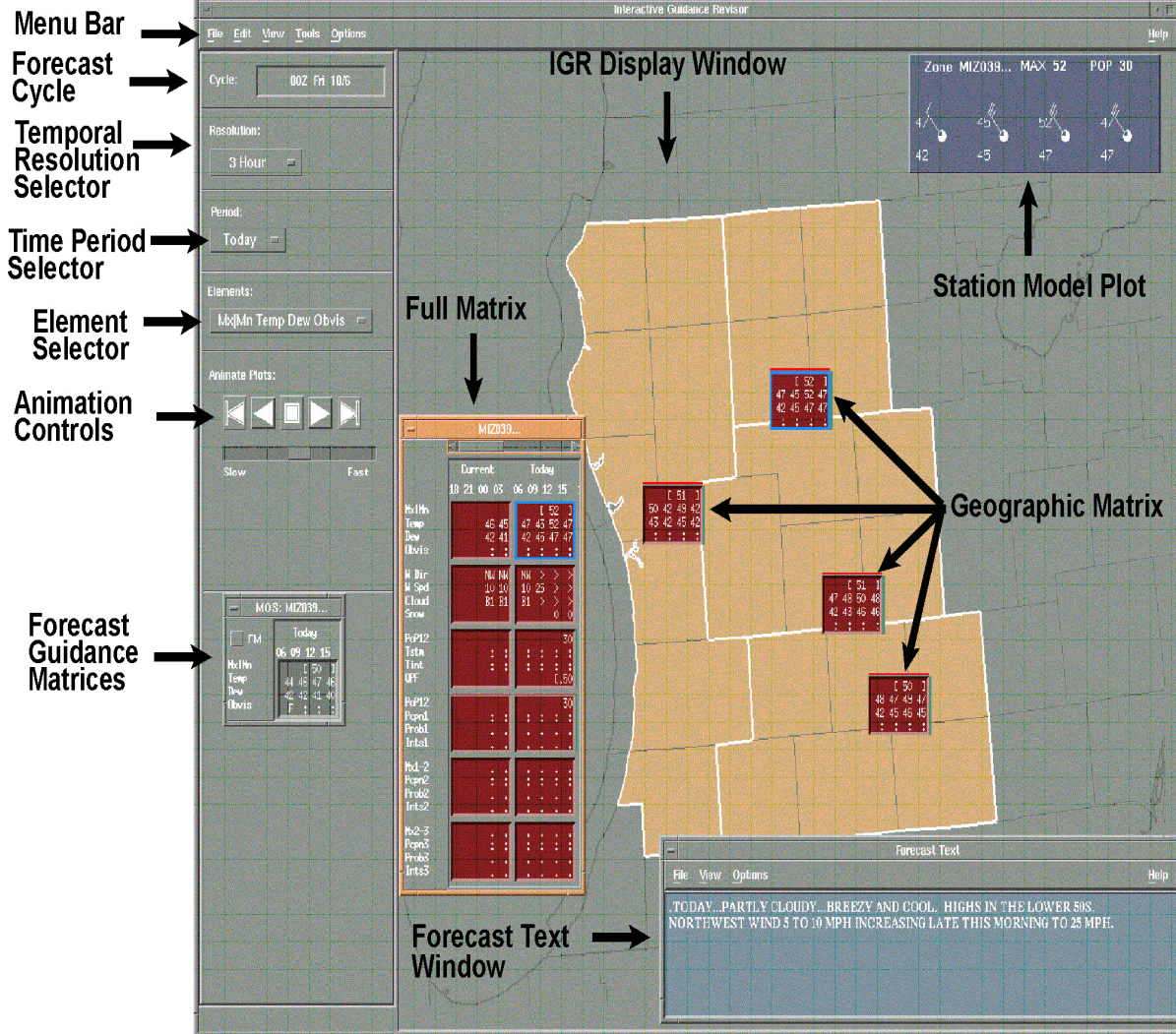
Launching IGR for the CCF.

Purpose: To start the IGR program to station data.

1. Select the **Stations** icon on the **IFPS Master Menu**. Make sure you are aware of the traffic lights. The preferred method is to make sure that the traffic light between **Grids** and **Stations** is **green**.

OR

1. Select the **Edit** menu in *IGR*.
2. Then select **Stations**.



IGR Job Sheet 2 : Editing the Matrices

Objective

This job sheet will familiarize the user with how to edit the matrices in IGR.

Procedures

Increasing/Decreasing the Matrix Data

Purpose: To change the data in the matrices incrementally.

1. Select the **Tools** menu on top. Make sure that **Inc/Dec** is selected.
2. Place the cursor over a desired weather element in either a full matrix or geomatrix. Notice that the pointer changes to a “*twin caret*”.



[54]	57	59	59
56	58	58	58
:	:	:	:
:	:	:	:

3. Press the *left mouse* button to **increase** the value or the *middle mouse* button to **decrease** the value.
4. To set a range in the **Mx/Mn** weather element, simply click either on the start or end bracket. This can be done on the **QPF** weather element as well. (Note: The range can be toggled off by either increasing the left-hand value above the middle value or by decreasing the right-hand value above the middle value.)
5. To place an end to precipitation (**Tstm**, **Pcpn1**, **Pcpn2**), then you can insert the “:” symbol by using the *middle mouse* button.

Copy and Paste One Matrix to Another

Purpose: To copy and paste data from one matrix to another matrix.

1. Select the **Tools** menu on top. Make sure that **Copy** is selected. You can also *right click* anywhere over a geographic or full matrix and an **Edit Tools** pull-down menu will appear. From here, you can select **Copy**.

2. The cursor will now change to a *left* bracket “[”. The bracket signifies **Copy Mode**.



[54]			
[60 57 59 59			
56 58 58 58			
: : : :			

3. Now place the *left* bracket in the upper left corner of the block that you wish to copy and then press the *left mouse* button. Notice that the cursor now changes to a *right* bracket “]”.

4. Move the *right* bracket to the lower right corner of the block to be copied and then press the *left mouse* button. The area selected in the matrix is highlighted. The cursor changes back to a *left* bracket annotated with a “P”. The “P” means paste.

5. Now move the cursor to the point within the target matrix where you want to paste the highlighted data and then press the *left mouse* button. The entire block of data is copied into the target matrix at that point.

6. To cancel or stop the copy operation, then toggle the **Inc/Dec** selection or place the cursor over a non-matrix area and press the *left mouse* button.

Drag and Drop Method

Purpose: To copy the source matrix to the same exact place in the destination matrix.

1. Follow steps 3 and 4 above.

2. Place the cursor over the highlighted area and then press and hold down the *middle mouse* button. The cursor changes to a symbol that looks like one piece of paper on top of another piece of paper.

3. Keeping the *middle mouse* button depressed, move the cursor to the target matrix where you want to paste the data.

4. Then release the button anywhere over the target matrix. The symbol changes back to a *left* bracket indicating that the data has been copied to the target matrix.

5. To view other full matrices while in **Copy Mode**, you will have to select **View** and then select **Full Matrix...** Then choose the appropriate zone combination to view by highlighting it.

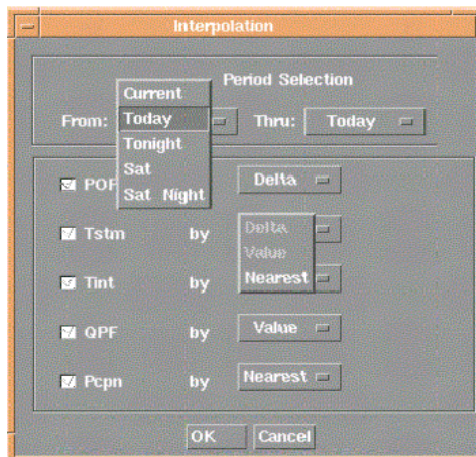
Now click **OK**.

(Note: Please keep in mind that the drag and drop method allows you to copy data from a full matrix into a geomatrix even if the data is hidden. In other words, the entire highlighted area will be copied exactly. This is not true with the copy and paste method.)

Interpolation

Purpose: To interpolate between missing data.

1. Before you can use the interpolation feature, the data must be edited **FIRST** in the matrices.
2. Click on the **Tools** menu at the top and then select **Interpolate**. You can also *right click* on the matrix and select **Interpolate** from the **Edit Tools** drop-down menu.
3. An **Interpolation** window will then appear with computer-recommended changes. However, you can change the time period, weather elements and interpolation method.



There are 3 methods of interpolation :

- 1. Delta** All unedited matrices have the same amount of changes or delta changes or the same delta is applied to the other matrices for this element.
- 2. Value** All matrices have the same exact value as the edited matrix for this element.
- 3. Nearest** All other matrices changes are weighed upon the distances from the edited matrix.

4. Make the appropriate changes within the **Interpolation** window.

5. Click **OK** to interpolate the data.

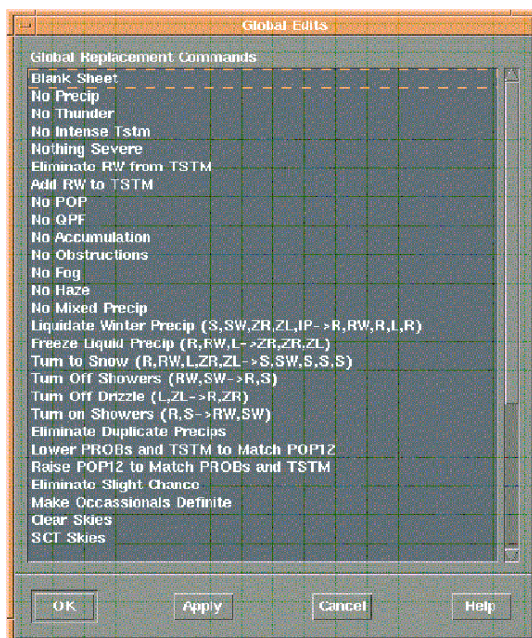
Note: When any editing is done in the matrices, there is a vertical **green** line that appears to the right of the edited matrix. After interpolation is done, these **green** lines will disappear.

Global Edits

Purpose: To replace certain weather elements all at once to a matrix.

1. Select the **Tools** menu and then select **Globals...** or you can *right click* over the matrix and select **Globals...** from the **Edit Tools** drop-down menu.

2. The **Global Edits** window will then appear.



3. Highlight the desired option(s) and then select **OK**.

4. The changes are made to every matrix.

5. If you want to undo the changes that you have made, then you can select **Undo** from the **Edit** menu.

Specifying Thunderstorm Intensity (TINT)

Purpose: To modify the TINT variable.

1. Place the cursor over the desired time in the **Tint** row and then *right click* the mouse button. The **TINT Selector** window will then display.

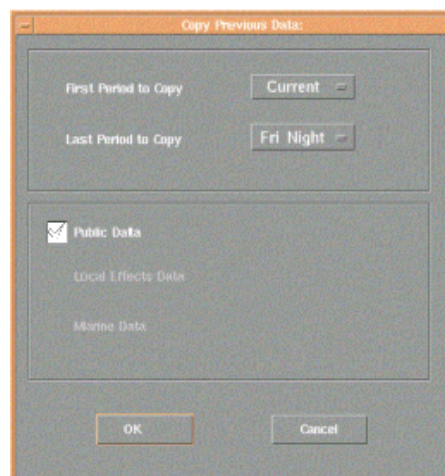


2. Highlight the desired selection(s).
3. When you are finished, then select **OK**.

Copy Previous Data

Purpose: To copy all or a portion of the previous forecast data into the current forecast matrices.

1. Select the **Edit** menu.
2. Then select **Copy Previous Data....** A pop-up window will then appear.



3. Select the *First Period to Copy* pull-down menu. Then select the first desired forecast period to be copied.
4. Then select the *Last Period to Copy* pull-down menu. Select the last desired forecast period to be copied.
5. The selection for *Public Data* should be checkmarked. Other types of data may be selected when they become available.
6. Select **OK**. The previous data is then copied into the current forecast for the specified periods.

Saving the Matrices

Purpose: To save the modified matrices.

1. Go to the **File** menu.
2. Select **Save**. The digital forecast matrices (DFM) are now saved to the database.

Interpreting the Matrix

The same forecast values are used in all the station and zone combination matrices whether you are looking at the full matrix, the forecast guidance matrix, or the geographic matrix. The values displayed are averages based on the way your IFPS focal point mapped (configured) your CWA. The following table explains the parameters and valid times for each of the weather elements.

Mx Mn	Represents the forecast maximum (Mx) or minimum (Mn) temperature, in degrees Fahrenheit, during the daylight/nighttime periods. Maximum temperatures are forecast between 6 a.m. and 6 p.m. LT. Minimum temperatures are forecast between 6 p.m. and 6 a.m. LT. However, MOS guidance maximum/minimum temperatures are defined as 7 a.m. to 7 p.m./7 p.m. to 7 a.m. Local Standard Time (LST).
Temp	The average forecast temperature, in degrees Fahrenheit, for that three hour span of time. For example, a temperature of 62 degrees between midnight and 3 a.m. LT represents the average forecast temperature from 12:01 to 3:00 a.m. LT. <i>Temperature is only forecast out 48 hours so is only found on the 3-hour matrix.</i>
Dew	The average forecast dew point temperature, in degrees Fahrenheit, for that three hour span of time. For example, a dew point temperature of 50 degrees between midnight and 3 a.m. represents the average forecast dew point temperature from 12:01 to 3:00 a.m. LT. <i>Dew point is only forecast out 48 hours so is only found on the 3-hour matrix.</i>
Obvis	The expected obstruction to vision. The parameters are fog (F), dense fog (F+), patchy fog (PF), patchy dense fog (PF+), haze (H), smoke (K), blowing snow (BS), and blowing dust (BD). <i>Obstruction to vision is only forecast out 48 hours so is only found in the early portion of the forecast.</i>
W Dir	The expected average wind direction using 8 points of the Compass (N, NE, E, SE, S, SW, W, NW). <i>Wind direction is only in the early portion of the forecast.</i>
W Spd	The expected average wind speed (miles per hour).
Cloud	The forecast cloud cover for each time period. The parameters are Clear (CL), Scattered (SC), Broken 1 (B1), Broken 2 (B2), and Overcast (OV).
Snow	The forecast snowfall accumulation, in whole inches, during a 12-hour period ending 6 a.m. or 6 p.m. LT. <i>Snowfall values are found on the 3-, 6-, and 12-hour matrices.</i>

PoP12	The probability of precipitation is for a 12-hour period ending at 6 a.m. or 6 p.m. LT. The 12-hour probability of precipitation is used in the CCF and values are in tens of percentage.
Tstm	The probability of thunderstorms for each time period. The parameters are slight chance (S), chance (C), likely (L), occasional (O), definite (D), isolated (IS), widely scattered (WS), scattered (SC), numerous (NM), and Widespread (WP).
Tint	Forecasts the intensity (severe or non-severe) and associated hazards of the thunderstorms. The parameters displayed on the matrices are non-severe (*) and severe (T+). Tint is only forecast out 48 hours so is only found on the 3-hour matrix.
QPF	A quantitative precipitation forecast is the average precipitation, if precipitation falls, during a 12-hour period ending at 6 a.m. or 6 p.m. LT. Values are in hundredths of an inch. <i>QPF values are found on the 3-, 6-, and 12-hour matrices.</i>
Pcpn1, 2, 3	The type of precipitation forecast for each time period. The types of precipitation are rain (R), rain showers (RW), drizzle (L), snow (S), snow showers (SW), ice pellets (IP), freezing rain (ZR), freezing drizzle (ZL). <i>Pcpn1 is forecast in all matrices. Pcpn2 (second precipitation type) and Pcpn3 (third precipitation type) are forecast on the 3- and 6-hour matrices.</i>
Prob1, 2, 3	The conditional probability qualifiers are forecast for each precipitation type. The parameters are slight chance (S), chance (C), likely (L), occasional (O), definite (D), isolated (IS), widely scattered (WS), scattered (SC), numerous (NM), and Widespread (WP). <i>Prob1 is forecast in all matrices. Prob2 and Prob3 are forecast on the 3- and 6-hour matrices.</i>
Ints1, 2, 3	The intensity of the precipitation is forecast for each precipitation type. The intensity parameters are very light (--), light (-), moderate (no symbol), heavy (+). <i>Ints1 is forecast in all matrices. Ints2 and Ints3 are forecast on the 3- and 6-hour matrices.</i>
Mx1-2	The expected precipitation relationship between the Pcpn1 and Pcpn2 is forecast. One option is <u>“and” (&)</u> as in rain and snow. The other option is <u>“or” (/)</u> as in freezing rain or freezing drizzle. <i>Mx1-2 is forecast on the 3- and 6-hour matrices.</i>

Mx2-3 The expected precipitation relationship between the Pcpn2 and Pcpn3 is forecast. One option is “and” (&) as in rain and snow. The other option is “or” (/) as in freezing rain or freezing drizzle. *Mx2-3 is forecast on the 3- and 6-hour matrices.*

Other Symbols

These symbols are for ease in notation and readability.

- :** The colon symbol is used when no data is forecast (null forecast).
- .** The period tell you that no data is expected. For example, if PCPN1 has a “ : “ then Prob1, Inst1, and Mx1-2 will have a “ . “ as no data is expected.
- >** The greater than symbol tells you that the forecast is repeated.
- [** The left bracket indicates the low end of an optional forecast range.
-]** The right bracket indicates the high end of an optional forecast range.
- ??** Inserted to indicate that the forecast data is missing for this time projection. The ?? occurs when the forecast database is populated with grids that have a lower time resolution then the IGR field. For example, if NGM data is used to populate the hourly temperature grids, the grids are only filled in every six hours. When the data are unloaded to the Digital Forecast Matrices (DFMs) there will be ?? for every *other* three hour projection. To ensure fully populated grids, use a model with more information or use one of the GFE or Slider features to fill in the gaps.
- X** The symbol tells you that the forecast varies so much within the period that the 12- or 24-hour values are not displayed.

Matrix Symbols

Precipitation (PCPN)

R Rain
RW Rain Shower
L Drizzle
S Snow
SW Snow Showers
IP Sleet/Ice Pellets
ZR Freezing Rain
ZL Freezing Drizzle

Probability Qualifiers (Prob 1,2,3) and (Tstm)

S Slight Chance
C Chance
L Likely
O Occasional
D Definite
IS Isolated
WS Widely Scattered
SC Scattered
NM Numerous
WP Widespread

Intensity (INTS)

-- Very Light
 - Light
 Moderate
 + Heavy

Precipitation

Relationships (MIX)

& And
/ Or

Obstruction to Vision (OBVIS)

F Fog
PF Patchy Fog
H Haze
BS Blowing Snow
F+ Dense Fog
PF+ Patchy Dense Fog
K Smoke
BD Blowing Dust

Tint (Tstm)

***** Non-Severe
T+ Severe

Other Symbols

: null forecast (no entry)
> repeat forecast (same as previous)
[low end of an optional forecast range
] high end of an optional forecast range
?? forecast data missing for this time period
X changing conditions indicator

Note: Most of the weather element abbreviations and symbols are standard Federal Meteorological Handbook Number 1 (FMH-1) abbreviations.

IGR Job Sheet 3 : Local Effects, Wildcards and Detail Levels

Objective

This job sheet will familiarize the user with the use of local effects, wildcards and detail levels in the forecast process.

Procedures

Local Effects

Purpose: To inject local effects into the forecast.

Currently, the only local effect that is employed is the coast. This local effect is actually called “*along the coast*”.

1. Move the cursor over the desired geographic matrix for one of the **COASTAL** zones. *Right click* and select **Local Effects**...then select **along the coast**. (Please keep in mind that local effects will only be applied to that specific geomatrix. To apply local effects for other weather elements, then you will need to make sure that particular geomatrix is displayed.)
2. A new geographic matrix will appear on the right-hand side of the *IGR* display. This new matrix will now represent coastal locations. (The example below is a valley local effect geomatrix.)



VAZ007... VALLEYS				
	[30]	
22	26	30	29	
11	12	12	12	
:	:	:	:	

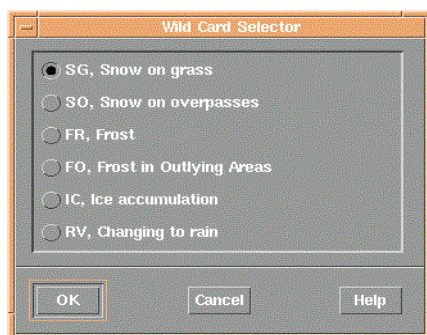
3. You can edit this new matrix just like the other matrices. You can see the effects of your editing in the **Forecast Text** window. As data is modified, the matrices become gray to signify that the local effects are being included in the forecast.
4. You can only work on one local effect at a time. After you are finished working on one local effect, then *right click* on the local effects geomatrix and then select **Local Effects** and then **Reset**. This will allow you to work on another local effect. (Note: This must be done because we usually break up the coast into 2 separate zone combinations.)

Wildcards

Purpose: To inject wildcard phrases into the forecast.

Wildcard phrases are phrases such as “*Record low temperatures are likely*”. These phrases cannot be produced by *IGR* at the present time and therefore need to be added into the forecast. These phrases provide additional detail to the forecast.

1. Move the cursor over the **Pcpn1** or **Pcpn2** row on the full matrix.
2. Then *right click* over one of these rows. A **Wildcard Selector** window will then appear.



3. Make the desired selection and then click **OK**.
4. The wildcard is now injected into the full matrix and can be viewed in the **Forecast Text** window. The wildcard will appear as a two letter identifier within the matrix.

Detail Levels

Purpose: To inject more/less detail in the forecast through specific settings.

Detail levels are ways to add more detail or less detail into the forecast. This is achieved through various detail levels which control forecast descriptors. **Low numbers (detail levels) yield greater detail while high numbers (detail levels) yield less detail or no detail.**

1. Go to the **Forecast Text** window and select the **Options** menu.
2. Then select **Detail** and then select **Public...**
3. A **Detail Levels for ZFP** window will then appear.

4. Select a detail level for the desired weather element for the appropriate forecast period.
5. After you are done changing the detail levels, then click **OK**.

<u>Wx Element</u>	<u>Detail Levels</u>	<u>Description</u>
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Pcpn	1	All descriptors, intensities and time phrases.
	2	No intensities or changes, fewer time phrases.

Pcpn Style	Std	Chance of rain XX percent.
	InL	An XX% chance of rain.

Snow	1	Detailed snow accumulation phrases.
	2	General snow accumulation phrases.
	3	No snow accumulation phrases.

Cloud	1	All intraperiod changes and time phrases.
	2	General phrases and abbreviated changes only (e.g., increasing cloudiness).

Temp	1	All max/min phrases and all adjectives used.
	2	All max/min phrases and omit unimportant adjectives.
	3	All max/min phrases and only extreme adjectives used.
	4	All max/min phrases and no adjectives used.

Wind	1	Specific time phrases and all wind adjectives used.
	2	General time phrases and all wind adjectives used.
	3	No time phrases and less detailed adjectives used.
	4	No speed/direction phrases and less detailed adjectives used.
	5	Only important adjectives used.
Gust	1.0	Multiplicative factor of 1.0. (No gust phrases are generated.)
	1.5	Multiplicative factor of 1.5. (20 mph wind with a 30 mph gust.)
	2.0	Multiplicative factor of 2.0. (30 mph wind with a 60 mph gust.)
	3.0	Multiplicative factor of 3.0. (30 mph wind with a 90 mph gust.)

IGR Job Sheet 4 : Quality Control

Objective

This job sheet will familiarize the user with how to quality control the matrices.

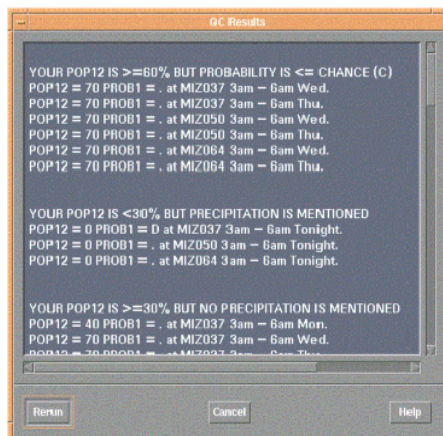
Procedures

While editing the matrices, you may see a horizontal red line appear on the full matrix. This line is called a “*cahooty*” line. This line means that forecast fields are not in “in cahoots” with one another. In other words, one or more forecast fields do not agree with another forecast field(s). For example, a value of 50% for the PoP12 field along with an “S” value (slight chance) for the Prob1 field would produce a red line.

Quality Control Check

Purpose: To perform quality control of the matrices.

1. If you have red lines on your full matrix and you wish to perform a thorough quality control of all the data, then proceed. Even if there are no red lines, you may still want to perform a quality control. You should always perform manual quality control.
2. Go to the **File** menu and select **QC Check...**
3. After a few seconds, a **QC Results** window will appear.



4. A list of all the inconsistencies is shown in the **QC Results** window as well as the affected matrices. You will need to make the appropriate changes to the matrices and then re-run **QC Check** until there are no errors.

IGR Job Sheet 5 : Intersite Coordination

Objective

This job sheet will familiarize the user with how to start and end intersite coordination.

Procedures

Intersite Coordination

Purpose: To allow the user to view matrices from neighboring offices.

1. Go to the **File** menu.
2. Then select **Start Intersite Coordination**.
3. After a minute or two, you will be able to view neighboring forecast matrices. These matrices will be an [aquamarine](#) color. You cannot edit the data.
4. Once you are done viewing the data, then select **End Intersite Coordination**. This needs to be done in order to shut down the intersite coordination process.

IFPS Job Sheet 1 : General Troubleshooting Tips

Objective

This job sheet will familiarize the user with how to troubleshoot IFPS when it does not work properly.

Procedures

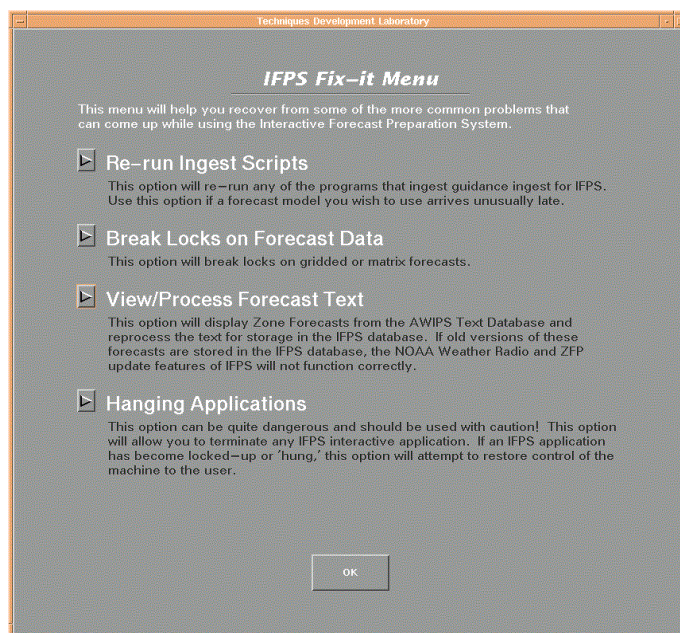
IFPS Fix-it Menu

The IFPS Fix-it Menu will allow the user to troubleshoot many IFPS problems.

1. To open up the **IFPS Fix-it Menu**, go to the **Products** icon on the **IFPS Master Menu**.



2. Then go to the **Admin** menu and select **IFPS Fix-It**. The **IFPS Fix-it Menu** will then appear.



Missing MOS and/or model data

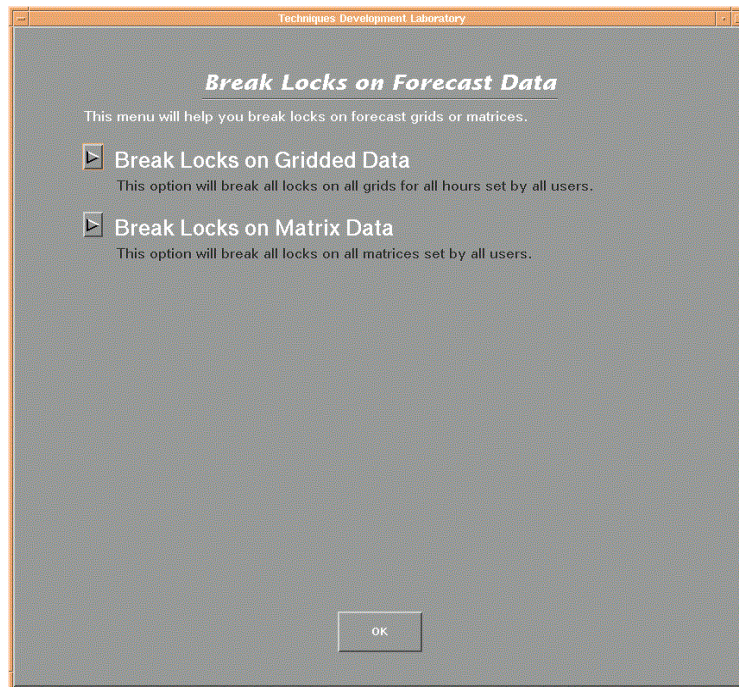
1. If MOS and/or model data are missing or incomplete in IFPS, then one option would be to re-ingest the data through the **IFPS Fix-it Menu**.
2. Select the **Re-run Ingest Scripts** option. The **Re-run Ingest Scripts** window will then appear.



3. Select the model and cycle of the data that you would like re-ingested.
4. Then press the **Add** button. This will place the model and cycle in the entry box.
5. Now press the **Re-Ingest** button. Pressing the **Re-Ingest** button will produce a pop-up dialog box displaying the status of the data ingest. Then click the Exit button when finished. Then exit the **IFPS Fix-it Menu** by clicking **OK**.

Data is Locked

1. If gridded data on *GFE* is locked (i.e., you cannot publish grids and/or red shading appears on the *Grid Manager*), then you can follow ***GFE Job Sheet 10*** or you can go to the **IFPS Fix-it Menu**. If matrix data is locked, then go to the **IFPS Fix-it Menu**.
2. Select the **Break Locks on Forecast Data** option. A window will then appear.



3. To break locks on either gridded data or matrices, then choose the appropriate option.
4. Click **OK** when you are done. To exit the **IFPS Fix-it Menu**, select **OK**.

Hung IFPS Program (This option should be used with extreme caution!)

1. If an application is hung and cannot be brought up, then you may want to go to the **IFPS Fix-it Menu** and select **Hanging Applications**.



2. Select the hung application(s) and host name(s).
3. Then press the **Kill Applications** button to kill the hung application(s).
4. Then select **File** and then **Exit** to return to the **IFPS Fix-it Menu**. Then click **OK** to return to the **Product Generation** Window.